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TANKAGE FOR HOGS IN CATTLE FEED LOTS.

BY B. E. CARMICHAEL.

During the winter months, and, in fact, during whichever months cattle feeders confine their fattening cattle to dry lots, many hogs are fattened in Ohio upon the undigested grain which appears in the droppings from the cattle.

Of 45 Ohio cattle feeders from whom definite information concerning their methods of feeding hogs in cattle feed lots has been obtained, only 10 fed any feeds other than corn to the hogs that gather the grain from the steers' droppings. The other 35 feeders either used no feed besides that which was not digested by the steers or else gave *corn* in addition.

Since corn is the chief grain used for fattening cattle, it follows that the hogs which depend solely upon the undigested grain in the steers' droppings must be confined to a ration made up almost exclusively of corn. Even if, in addition to corn, other concentrates richer in protein and ash than is corn are fed to the steers, the corn in the droppings is much more readily found, and the benefit derived by the hog from the feeds other than corn is not very great, although it is believed that some benefit may be derived.

This Station has undertaken a series of experiments to determine whether or not the prevailing practice can be improved by supplying a feed comparatively rich in protein and ash to hogs that follow fattening cattle. The results of the preliminary work in this direction have been very striking and are presented in this circular.

The tests with which this circular has to do were conducted in conjunction with a steer feeding experiment, the plan of which was, briefly, as follows:

Six lots of steers, seven head in each lot, were fed upon two different rations—three lots upon each ration. Lots 1, 3 and 5 received shelled corn, cottonseed meal, corn stover, mixed hay, and corn silage. Lots 2, 4 and 6 received shelled corn, cottonseed meal, corn

stover and mixed hay. The three lots last mentioned received more corn and more dry roughage than did the lots first mentioned, on account of not receiving silage, which, of course, contained both grain and roughage. All lots of cattle received the same amount of cottonseed meal daily per steer.

During the first part of the experiment three hogs were put with each lot of cattle; later these hogs were replaced by a thinner lot and four hogs were placed with each lot. The first set of hogs was under experiment for 63 days, the second set for 56 days.

Not a large enough number of hogs was used in any of the lots to eat all of the grain that passed through the steers, although the amount left was in no case great. No corn was fed to the hogs, and, as the cattle feed racks were so constructed as to prevent the grain being thrown out, the hogs secured no grain except that which appeared in the droppings from the steers.

One steer in lot 5 died early in the cattle feeding experiment, and as this would make a difference in the amount of grain available in the droppings from this lot, and since it was desirable to have an equal number of silage fed lots and of dry fed lots for comparison, the pigs in lots 1, 3, 4 and 6 were selected for the work.

TABLE I.—Hogs following steers March 20*—May 21, 1907, inclusive. Three hogs in each lot.

Lot	Steer ration	Hog ration	Initial weight	Final weight	Total gain	Daily gain per hog
1	Silage	Grain from droppings and ½ lb. tankage daily per hog in addition	290	565	275	1.46
3	Silage	Grain from droppings	280	434	154	.81
4	Dry	Grain from droppings	305	530	225	1.19
6	Dry	Grain from droppings and ½ lb. tankage daily per hog in addition	331	655	324	1.71
		Hogs following steers May 22—July 16, 1907, inclusive. Four hogs in each lot.				
1	Silage	Grain from droppings and ½ lb. tankage daily per hog in addition	445	766	321	1.43
3	Silage	Grain from droppings	460	667	207	.92
4	Dry	Grain from droppings	470	692	222	.99
6	Dry	Grain from droppings and ½ lb. tankage daily per hog in addition	445	755	310	1.38

*Weight of hogs taken March 20; feeding of tankage began March 21.

The supplementary feed used in this test was digester tankage, a packing house by-product, of which the hogs in lots 1 and 6 received one third of a pound daily per head, after they had become gradually accustomed to it. The hogs in lots 3 and 4 received no feed other than that obtained from the droppings from the cattle. Al

lots were kept supplied with a mixture of ashes and salt. It is of interest to note that the lots fed tankage cared less for the ashes and salt than did the other lots.

The tankage was fed in the form of a thin slop, once daily. It may be very conveniently fed in this manner and was greatly relished by the hogs, in fact, they exhibited an almost ravenous appetite for it.

Table I presents some of the important facts concerning the tests. It will be observed that the first set of hogs made rather larger average daily gains upon the whole than did the second set. However, the percentage of variation due to the feeding of tankage is not greatly different with the two sets. The hogs in the first set were older when the test began than were those in the second set. Their lower weight was due to their having been poorly fed before they were purchased by the Station.

TABLE II. Summary of weights and gains of lots fed tankage and lots not fed tankage.

		Fed Tankage		Not fed tankage	
		Initial weight, lbs.	Final weight, lbs.	Initial weight, lbs	Final weight, lbs.
Lot 1	1st Set	290	565		
	2nd Set	445	766		
Lot 3	1st Set			280	434
	2nd Set			460	667
Lot 4	1st Set			305	530
	2nd Set			470	692
Lot 6	1st Set	331	655		
	2nd Set	445	755		
Total		1511	2741	1515	2323
Gains		1230 pounds.		808 pounds	
Increased gains due to feeding tankage				422 pounds	
Percent increase in gains due to feeding tankage				52.22 percent.	

Table II shows that the gains were much larger for the lots fed tankage—52.22 percent more than the gains made by the lots which received no tankage. The total amount of tankage fed to the two tankage-fed lots was 259.5 pounds, which, at $37.60 per ton, delivered at Wooster, cost $4.88. Recent quotations on tankage have been somewhat higher.

It is possible that the tankage-fed hogs consumed somewhat more corn than did those which received no tankage. Definite data are not at hand in regard to this matter, since in each of the lots a small amount of the grain was left in the manure by the hogs. It seems certain, however, that the gains made by the tankage-fed

hogs are cheaper as well as larger. Experiments conducted at this Station (the results of which will be reported in detail later) tc compare corn alone with corn and supplementary feeds rich in protein and ash have shown that the hogs fed corn alone consumed less feed, made much lower gains and required a greater number of pounds of feed to produce one pound gain than did the hogs which received the supplementary feed with the corn.

Even if the amount of feed consumed for one pound of gain should prove to be the same in each instance, there is still a very decided advantage in feeding the tankage; for *fewer hogs* would be required to consume the droppings from a given number of cattle and to produce a given amount of gain, and they would be ready for market much quicker, thus both reducing the amount of money tied up in hogs and permitting a more frequent turning of the money. Aside from these considerations, feeders will readily appreciate the fact that fewer hogs and a shorter feeding period would greatly lessen the liability to loss from cholera. Any method of feeding or management of livestock which makes it possible to reduce the number of animals necessary to furnish a given amount of product, or to cheapen in any other way the cost of production, is worthy of consideration by stockmen. It seems certain that the use of such supplementary feeds as are suggested in this circular will greatly increase the profits from hogs that follow cattle.

While, on account of its cheapness as a carrier of protein and ash and convenience for feeding, digester tankage was used in the work reported herein, it is believed that other feeds, such as linseed oilmeal, soy beans, skim milk, buttermilk, or middlings would greatly increase the efficiency of the "cattle hog" in making economical gains. Feeders need, however, to exercise keen discrimination in the purchase of feedstuffs for there is a likelihood of a heavy demand for certain feeds making it possible for the manufacturers to raise prices beyond the amount justified by the feeding value.

Further work is needed along this line to determine what feeds are best suited for this purpose, and in what amounts they should be fed. It is expected to continue this line of work at this Station during the coming year. Sufficient work has been done, however, to show that hogs following cattle are often not supplied with the ration best suited for the production of the greatest gains.

In the tests reported in this circular the gains made by hogs fed tankage were *more than one-half greater* than the gains made by the hogs that depended entirely upon the droppings from the steers —a decided increase from the use of a supplementary feed rich in protein and ash.